

FACT SHEET
ISSUANCE OF A GENERAL VPDES PERMIT
TO DISCHARGE TO STATE WATERS AND STATE
CERTIFICATION UNDER THE STATE WATER CONTROL LAW

The Virginia State Water Control Board has under consideration the issuance of a VPDES general permit for point source discharges from facilities discharging potable water treatment plant wastewater (SIC Code 4941-Water Supply) to the surface waters of the State of Virginia. This permit is a VPDES general permit covered under the National Pollutant Discharge Elimination System. Owners who wish to discharge under a general permit, must register for coverage under the new general permit.

Permit Number: VAG64

Name of Permittee: Any owner of a qualifying potable water treatment plant with point source discharges to the surface waters of the Commonwealth of Virginia.

Facility Location: Commonwealth of Virginia

Receiving Waters: Surface waters within the boundaries of the Commonwealth of Virginia, except those specifically named in Board Regulations or Policies which prohibit such discharges.

On the basis of preliminary review and application of lawful standards and regulations, the State Water Control Board proposes to issue the general VPDES permit subject to certain conditions. The Board has determined that this category of discharges is appropriately controlled under a general permit. The category of discharges to be included involves facilities with the same or similar types of operations and the facilities discharge the same or similar types of wastes. The draft general permit requires that all covered facilities meet standardized effluent limitations and monitoring requirements.

Persons may comment in writing or by mail to Department Environment Quality on the proposed permit action until July 11, 2007. Comments should be addressed to the contact person listed below. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered by the Board.

All pertinent information is on file and may be inspected, and arrangements made for copying by contacting George Cosby at:

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A public hearing will be held on this draft permit. Notice of the public hearing will be published in newspapers and in the Virginia Register. Following the public hearing comment period, the Board will make determinations regarding the proposed permit action.

Activities Covered By This General Permit:

This general permit will cover point source discharges of potable water treatment plant wastewater (SIC Code 4941 – Water Supply) to surface waters of the Commonwealth of Virginia by direct point sources. The type of facilities to be covered shall include wastewater generated from clarifier underflow, sludge blowdown and particulate filter backwash from plain

purification and lime-soda softening process, iron filter backwash wastewater from iron and manganese removal processes, reverse osmosis and micro filtration plants.

Facilities that are subject to the requirements of 9 VAC 25-820-70, Part I.G.1 (*General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia - Requirement to Register*), will usually also have an individual permit to address tracking of waste load offsets or technology-based annual concentration limits. These facilities are excluded from coverage under this general permit, since the discharge of potable water treatment plant wastewater will be included as part of the individual permit.

The pollutants in the wastewater that require treatment are total suspended solids, pH, total residual chlorine, total dissolved solids, and dissolved oxygen. A facility is ineligible for coverage under this GP if DEQ becomes aware of any data indicating the potential for water quality impacts.

As a pre-requisite for coverage under this general permit the facility must demonstrate that there is not a reasonable potential for toxicity by performing a Whole Effluent Toxicity (WET) evaluation. The results of the WET evaluation will be submitted with the registration statement and reviewed by DEQ Regional staff for compliance. If the WET evaluation displays a reasonable potential for toxicity the registration statement for the GP will be denied and the applicant will be requested to obtain an individual permit. The WET consists of a minimum of 4 sets (set = vertebrate and invertebrate) of acute or chronic tests that reflect the characteristics of the current effluent using following tests and organisms.

For an intermittent or batch discharger - 48 hour static acute toxicity test:

Freshwater organisms - *Pimephales promelas* (vertebrates) or *Oncorhynchus mykiss* (vert)
(for cold water) *Ceriodaphnia dubia* (invertebrates)
Saltwater organisms - *Cyprinodon variegatus* (vertebrates)
Americamysis bahia (invertebrates)

For a continuous discharger:

Freshwater

7-Day Chronic Static Renewal Larval Survival and Growth Test with *Pimephales promelas* (vertebrates)

3-Brood Chronic Static Renewal Survival and Reproduction Test with *Ceriodaphnia dubia* (invertebrates)

Saltwater

7-Day Chronic Static Renewal Survival, Growth and Fecundity Test with *Americamysis bahia*

7-Day Chronic Static Renewal Larval Survival and Growth Test with *Cyprinodon variegatus*

Freshwater organisms are used where the salinity of the receiving water is less than 1%. Where the salinity of the receiving water is greater than 1% but less than 5% either freshwater or saltwater organisms may be used. Saltwater organisms are used where the salinity is greater than 5%.

There shall be a minimum of 30 days between sets of tests, and test procedures shall follow 40 CFR Part 136 which references the EPA guidance manuals for Whole Effluent Toxicity testing. The data will be evaluated statistically to see if there is reasonable potential for toxicity; if such a potential exists, the facility must either continue operation under its existing individual VPDES permit, or apply for an individual VPDES permit.

Individual permits that contain a groundwater monitoring plan can be covered under this GP. The permittee will be required to continue to sample and report in accordance with approved ground water monitoring plan approved through the individual permit submitted in the accepted registration statement.

Proposed Limitations and Monitoring Requirements:

A. Effluent limitations for potable water treatment plant wastewater (SIC Code 4941-Water Supply) facilities are as follows:

<u>Parameter</u>	<u>Limitation</u>	<u>Monitoring</u>
Flow	Monitoring	Estimate
pH	9.0 max., 6.0 min. ¹	Grab
Total Suspended Solids	30 mg/L avg., 60 mg/l max.	5G/8HC ²
Total Residual Chlorine ³	0.011 mg/l avg. and 0.011 mg/l max.	Grab

B. Effluent limitations for reverse osmosis potable water treatment plant wastewater (SIC Code 4941-Water Supply) facilities are as follows:

<u>Parameter</u>	<u>Limitation</u>	<u>Monitoring</u>
Flow	Monitoring	Estimate
pH	9.0 max., 6.0 min. ¹	Grab
Dissolved Oxygen	4.0 min.	Grab
Total Dissolved Solids	NL mg/l max ⁵	5G/8HC ²

¹ Where the Water Quality Standards (9 VAC 25-260) establish alternate standards for pH and dissolved oxygen in waters receiving the discharge, those standards shall be the maximum and minimum effluent limitations.

² Eight Hour Composite - Consisting of five grab samples collected at hourly intervals until the discharge ceases, or until a minimum of five grab samples have been collected. Samples shall be comprised of wastewater discharged during all phases of wastewater generation, including backwash, etc.

³ Total Residual Chlorine limit shall only be applicable to facilities discharging to surface waters that use chlorine in the treatment process.

⁴ Monitoring frequency shall be once per month. Monitoring frequency can be reduced to once per quarter upon written notification from DEQ Regional Office. Reports of quarterly monitoring shall be submitted to the DEQ Regional Office no later than the 10th day of April, July, October and January. Reference special condition no. 4.

⁵ NL is defined as no limitation, monitoring and reporting are required.

The permittee shall maintain records of cleaning and maintenance of all treatment units. These records shall be made available to DEQ personnel upon request.

Basis for Proposed Effluent Limitations and Monitoring Requirements

In developing the proposed effluent limitations and special conditions the following information was reviewed. DEQ's permit manual currently contains standard effluent limits and special permit conditions to be used for individual permits, and several other states issue general permits, for discharges from potable water treatment plant wastewater (SIC Code 4941-Water Supply) facilities. As no federal effluent guidelines currently exist for discharges from water treatments plants, the monitoring requirements and limitations in this permit are based on best professional judgment and the water quality standards in 9 VAC 25-260 as amended.

As determined by the nature of the business, the parameters to be limited or monitored in this general VPDES permit for potable water treatment plant discharges are pH, total residual chlorine and total suspended solids. The parameters for reverse osmosis discharges are pH,

dissolved oxygen, and total dissolved solids. The pH limitation is based upon Virginia's stream water quality standards (9 VAC 25-260-50 and 9 VAC 25-260-380). The total suspended solids, and total dissolved solids parameters are based on best professional judgment (9 VAC 25-31-210). The dissolved oxygen and total residual chlorine parameter are based on water quality standards for the type of treatment employed by these systems. Complying with these parameters is an indication that the treatment system is being operated and maintained properly and is producing an acceptable quality effluent.

Monitoring frequency shall be once per month. A WTP that is applying for general permit coverage, and is in compliance with their individual VPDES permit containing monitoring frequencies of once per quarter can continue monitoring frequencies of once per quarter under the general permit upon written notification from DEQ Regional Office. Should the WTP be issued a warning letter related to violation of effluent limitations, a notice of violation, or be subject of an active enforcement action, monitoring frequency shall revert to once per month upon issuance of the letter of notice of initiation of the enforcement action, and remain in effect until the permit's expiration date.

WTPs may use either ground water or surface water as their source water and processes can vary depending on the treatment the source water requires. Ground water is most frequently treated to remove dissolved iron and manganese and typically includes oxidation (i.e. ozonation, chlorination, or addition of potassium permanganate) to precipitate the iron and manganese followed by filtration to remove the iron and manganese oxides. There are Water Quality Criteria for iron and manganese is the public drinking water standard at the intake of a public water supply (PWS). The limitations for iron and manganese were not required in this general permit. Reverse osmosis plants with iron and manganese in the discharge to a PWS should be covered by an individual VPDES permit.

Surface water is most frequently treated by filtration to remove suspended solids and may incorporate presedimentation and sedimentation basins before filtration. Precipitation, coagulation, and flocculation are frequently used to increase the effectiveness of sedimentation and filtration. Aluminum sulfate (alum) is the most common additive and is used for coagulation. Polymers are another common additive that may be used to enhance coagulation, flocculation, or filtration. Chlorination may be used before filtration as an oxidizing agent for precipitation and to remove taste and odor. Chlorine is often added after filtration for disinfection purposes, producing finished water for distribution to customers.

The wastewater treatment systems commonly utilized at these facilities consist of coagulation, sedimentation, filtration, and chlorination or disinfection. These wastewater treatment systems produce an acceptable quality effluent and operate well when maintained properly. Therefore, the permit requires the owner to inspect the treatment system and the quality of the effluent daily and to maintain a log of the treatment maintenance.

The plants that are proposed to be covered under this general permit are plain purification, lime soda softening, micro filtration, reverse osmosis, and iron and manganese removal.

Proposed Special Conditions

1. Inspection of the effluent, and maintenance of the wastewater treatment facility shall be performed daily. Documentation of the inspection and maintenance shall be recorded in an Operational Log. This operational log shall be made available for review by the Department personnel upon request.

[9 VAC 25-31-10, and 40 CFR 122.41(e) require proper operation and maintenance of the permitted facility.]

2. No domestic sewage discharges to surface waters are permitted under this general permit.

[The effluent limitations do not address pollutants typical of treated sewage, therefore no sewage discharge to surface waters are permitted under the general permit.]

3. Adding chemicals to the water or waste which may be discharged, other than those listed on the owner's accepted registration statement is prohibited. Prior approval shall be obtained from Department of Environmental Quality before any changes are made to the chemical(s), in order to assure protection of water quality and beneficial uses of the waters receiving the discharge.

4. Monitoring frequency shall be 1/month unless a written request is sent to the appropriate regional office to reduce monitoring to 1/quarter. Upon written notification from DEQ Regional Office, monitoring frequency shall be reduced to 1/quarter. Should the permittee be issued a warning letter related to violation of effluent limitations, a notice of violation, or be subject of an active enforcement action, monitoring frequency shall revert to 1/month upon issuance of the letter of notice of initiation of the enforcement action, and remain in effect until the permit's expiration date.

[This language is included to grant existing facilities a reduction in monitoring frequency based on a DEQ Regional Office review of compliance history.]

5. The permit establishes a solids management plan that includes:

- a. A prohibition on the discharge of floating solids or visible foam in other than trace amounts,
- b. A requirement to clean settling basins frequently in order to achieve effective treatment.
- c. A requirement that all solids shall be handled, stored and disposed of so as to prevent a discharge to state waters.

[This management plan will prohibit the discharge of solids into State waters unless authorized by permit and require the use of best management practices where applicable to control or abate the discharge of pollutants.]

6. If the discharge is into a municipal separate storm sewer, the permittee is required to notify the owner of the municipal separate storm sewer system of the existence of the discharge within 30 days of coverage under the general permit, and provide the following information: the name of the facility; a contact person and phone number; and the location of the discharge.

[Required by VPDES Permit Regulation, 9 VAC 25-31-120 Storm water discharges, paragraph 3.]

7. The permittee shall notify the Department as soon as they know or have reason to believe:

- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:

(1) 100 ug/L;

(2) Two hundred micrograms per liter for acrolein and acrylonitrile; five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter for antimony;

- (3) Five times the maximum concentration value reported for that pollutant in the permit application; or
- (4) The level established by the Board.
- b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:
 - (1) Five hundred micrograms per liter;
 - (2) One milligram per liter for antimony;
 - (3) Ten times the maximum concentration value reported for that pollutant in the permit application; or
 - (4) The level established by the Board.

[Required by VPDES Permit Regulation, 9VAC 25-31-200 A for all manufacturing, commercial, mining and silvicultural dischargers.]

- 8. If a DEQ approved ground water monitoring plan was submitted with the registrations statement the permittee shall continue sampling and reporting in accordance with the plan. The approved plan shall be an enforceable part of this permit.

[The purpose of the ground water monitoring plan is to determine if the system integrity is being maintained and to indicate if activities at the site are resulting in violations of the Board's Ground Water Standards (9 VAC 25-260-190).]

- 9. Compliance reporting under Part I A

- a. The quantification levels (QL) shall be as follows:

<u>Effluent Characteristic</u>	<u>Quantification Level</u>
Chlorine	0.10 mg/l
TSS	1.0 mg/l

- b. Reporting

Monthly Average -- Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in a. above shall be determined as follows: All concentration data below the QL listed above shall be treated as zero. All concentration data equal to or above the QL listed in a. above shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as "calculated". If all data are below the QL, then the average shall be reported as "<QL". If reporting for quantity is required on the DMR and the calculated concentration is <QL, then report "<QL" for the quantity. Otherwise use the calculated concentration.

Daily Maximum -- Compliance with the daily maximum limitations and/or reporting requirements for the parameters listed in a., above shall be determined as follows: All concentration data below the QL listed in a. above shall be treated as zero. All concentration data equal to or above the QL shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each day during the reporting month. The maximum value of these daily averages thus determined shall be reported on the DMR as the Daily Maximum. If all data are below the QL, then the average shall be reported as "<QL".

If reporting for quantity is required on the DMR and the calculated concentration is <QL, then report "<QL" for the quantity. Otherwise use the calculated concentration.

- c. Any single datum required shall be reported as "<QL" if it is less than the QL in a. above. Otherwise the numerical value shall be reported.
- d. The permittee shall report at least the same number of significant digits as the permit limit for a given parameter. Regardless of the rounding convention used (i.e., 5 always rounding up or to the nearest even number) by the permittee, the permittee shall use the convention consistently, and shall ensure that consulting laboratories employed by the permittee use the same convention.

[Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when toxic pollutants are monitored by the permittee and a maximum level of quantification and /or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.]

10. **Operation and Maintenance Manual Requirement.** The permittee shall develop an Operations and Maintenance (O & M) Manual for the treatment works. This manual shall detail the practices and procedures which will be followed to ensure compliance with the requirements of this permit. The manual shall be submitted to the DEQ Regional Office for approval within 90 days of **the date of coverage under the general permit OR completion of construction**. The permittee shall operate the treatment works in accordance with the approved O & M Manual. This manual shall include, but not necessarily be limited to, the following items, as appropriate:

- a. Techniques to be employed in the collection, preservation, and analysis of effluent samples;
- b. Discussion of Best Management Practices, if applicable;
- c. Treatment system design, treatment system operation, routine preventive maintenance of units within the treatment system, critical spare parts inventory and record keeping;
- d. A plan for the management and/or disposal of waste solids and residues; and
- e. Procedures for measuring and recording the duration and volume of treated wastewater discharged.

Any changes in the practices and procedures followed by the permittee shall be documented and submitted for staff approval within 90 days of the effective date of the changes. Upon approval of the submitted manual changes, the revised manual becomes an enforceable part of the permit. Noncompliance with the O & M Manual shall be deemed a violation of the permit.

OR (if an approved O & M Manual is already on file with DEQ) The permittee shall review the existing Operations and Maintenance (O & M) Manual and notify the DEQ Regional Office in writing within 90 days of **the date of coverage under the general permit** whether it is still accurate and complete. If the O & M Manual is no longer accurate and complete, a revised O & M Manual shall be submitted for approval to the DEQ Regional Office within 90 days of **the date of coverage under the general permit** or with the above required notification. The permittee will maintain an accurate, approved operation and maintenance manual for the treatment works. This manual shall detail the practices and procedures which will be followed to ensure compliance with the requirements of the permit. The permittee shall operate the treatment works accordance

with the approved O&M Manual. This manual shall include, but not necessarily be limited to, the following items, as appropriate:

- a. Techniques to be employed in the collection, preservation, and analysis of effluent samples;
- b. Discussion of Best Management Practices, if applicable;
- c. Treatment works design, treatment works operation, routine preventative maintenance of units within the treatment system, critical spare parts inventory and record keeping;
- d. A plan for the management and/or disposal of waste solids and residues; and
- e. Procedures for measuring and recording the duration and volume of treated wastewater discharged.

Any changes in the practices and procedures followed by the permittee shall be documented and submitted for staff approval within 90 days of the effective date of the changes. Upon approval of the submitted manual changes, the revised manual becomes an enforceable part of the permit. Noncompliance with the O & M Manual shall be deemed a violation of the permit.

[Required by Code of Virginia § 62.1-44.16; VPDES Permit Regulation, 9VAC25-31-190E, and 40 CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an approved O & M manual ensures this.]

Administrative

The general permit will have a fixed term of five years. Every authorization under this general permit will expire at the same time and all authorizations will be renewed on the same date, provided a complete registration statement has been filed prior to the general permit's expiration date.

All owners/operators desiring to be covered by this general permit must register with the Department by filing a registration statement and payment of applicable fees. The registration statement shall be submitted and a notification of coverage issued prior to any discharges or other activities for which this permit is required. Potable water treatment plant wastewater (SIC Code 4941-Water Supply) facilities that are discharging to surface waters on the effective date of this general permit and which have not been issued an individual VPDES permit, may submit the registration statement.

Existing operations with individual VPDES permits that wish to seek coverage under the proposed general permit would have to file a registration statement at least 90 days prior to the expiration date of the individual VPDES permit. For all new dischargers that will begin activities after the effective date of this permit, the registration statement shall be filed at least 60 days prior to the commencement of operation of the potable water treatment plant wastewater (SIC Code 4941-Water Supply) facility.

This general permit does not cover activities or discharges covered by an individual VPDES permit until the individual permit has expired or has been revoked. Any person conducting an activity covered by an individual permit, which could be covered by this general permit, may request that the individual permit be revoked and register for coverage under this general permit. Any owner or operator not wishing to be covered or limited by this general permit may make application for an individual VPDES permit, in accordance with VPDES procedures, stating the reasons supporting the request.

This general permit does not apply to any new or increased discharge that will result in significant effects to the receiving waters. That determination is made in accordance with the State Water Control Board's Antidegradation Policy contained in the Virginia Water Quality Standards, 9VAC 25-260-30 .

This general permit will maintain the Water Quality Standards adopted by the Board.

All facilities that the Department believes are eligible for coverage under this general permit will be authorized to discharge under the terms and conditions of the permit after a complete registration statement is submitted, the applicable permit fee is paid, and the Department sends a copy of the general permit to the applicant. If this general permit is inappropriate, the applicant will be so notified.

Potable water treatment plant wastewater (SIC Code 4941-Water Supply) facilities with point source discharges that do not qualify for coverage under this general permit may make application for an individual VPDES permit.